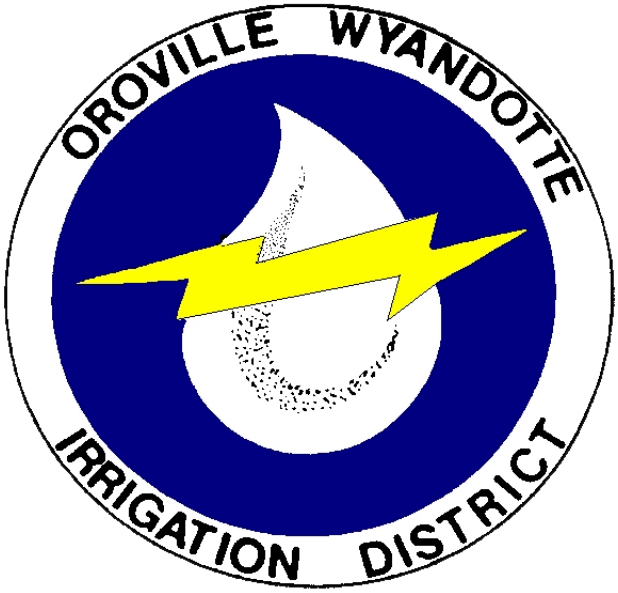


OROVILLE-WYANDOTTE IRRIGATION DISTRICT

PROPOSAL FOR

WATER USE EFFICIENCY PROGRAM

February 27, 2001

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form

1. Applying for (select one):
   - ☐ (a) Prop 13 Urban Water Conservation Capital Outlay Grant
   - ☐ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
   - ☒ (c) DWR Water Use Efficiency Project

2. Principal applicant (Organization or affiliation): Oroville-Wyandotte Irrigation District

3. Project Title: Forbestown Ditch Lining Project

4. Person authorized to sign and submit proposal:

Name, title	Michael Glaze, General Manager
Mailing address	PO Box 581 Oroville, CA 95965
Telephone	(530) 533-4578
Fax.	(530) 533-9700
E-mail	glaze@owid.com

5. Contact person (if different):

Name, title.	George Barber, Water Div. Mgr.
Mailing address.	PO Box 581 Oroville, CA 95965
Telephone	(530) 533-4578
Fax.	(530) 533-9700
E-mail	gbarber@owid.com

6. Funds requested (dollar amount): $191,000

7. Applicant funds pledged (dollar amount): $51,000

8. Total project costs (dollar amount): **$242,000**

9. Estimated total quantifiable project benefits (dollar amount): **$648,604**
   Percentage of benefit to be accrued by applicant: **6.6%**
   Percentage of benefit to be accrued by CALFED or others: **93.4%**

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

10. Estimated annual amount of water to be saved (acre-feet): **394**

Estimated total amount of water to be saved (acre-feet): **7,880**

Over _20__ years

Estimated benefits to be realized in terms of water quality, instream flow, other: Quantifiable Objective # **38** Sub-Region #5

11. Duration of project (month/year to month/year): 01/03 to12/03

12. State Assembly District where the project is to be conducted: Third

13. State Senate District where the project is to be conducted: First

14. Congressional district(s) where the project is to be conducted: Second

15. County where the project is to be conducted: Butte

16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: 12/00

17. Type of applicant (select one):
Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:

- ☐ (a) city
- ☐ (b) county
- ☐ (c) city and county
- ☐ (d) joint power authority
- ☒ (e) other political subdivision of the State, including public water district
- ☐ (f) incorporated mutual water company

DWR WUE Projects: the above entities (a) through (f) or:

- ☐ (g) investor-owned utility
- ☐ (h) non-profit organization
- ☐ (i) tribe
- ☐ (j) university
- ☐ (k) state agency
- ☐ (l) federal agency

18. Project focus:

- ☒ (a) agricultural
- ☐ (b) urban

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13 Agricultural Feasibility Study Grant capital outlay project related to:

- ☐ (a) implementation of Urban Best Management Practices
- ☐ (b) implementation of Agricultural Efficient Water Management Practices
- ☐ (c) implementation of Quantifiable Objectives (include QO number(s)

  _____
- ☐ (d) other (specify)

  _____

DWR WUE Project related to:

#38, subregion #5

- ☐ (e) implementation of Urban Best Management Practices
- ☒ (f) implementation of Agricultural Efficient Water Management Practices
- ☒ (g) implementation of Quantifiable Objectives (include QO number(s))
- ☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
- ☐ (i) research or pilot projects
- ☐ (j) education or public information programs
- ☐ (k) other (specify)

  _____

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

- ☐ (a) yes
- ☒ (b) no

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One
B. Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

_____	Michael Glaze, General Manager	_____
Signature	Name and title	Date

PROPOSAL PART TWO

Project Summary

The Oroville-Wyandotte Irrigation District (OWID) proposes a project of lining a section of the District's Forbestown Ditch for the purpose of reducing the amount of water lost to leakage and/or seepage. The Forbestown Ditch is located in Butte and Yuba Counties and begins near the community of Woodleaf. The Forbestown Ditch supplies irrigation water to OWID customers from Forbestown to Bangor, as well as to Yuba County Water District (YCWD). This ditch also supplies the source water for YCWD's domestic water treatment plant. The ditch is fed from the Woodleaf Powerhouse penstock (a component of OWID's South Fork Power Project). Irrigation deliveries are seasonal, occurring from May through October. District records confirm an annual average loss of water on the main portion of the canal of 2,040 acre-feet (AF) during the irrigation season.

Using District personnel and the use of a concrete pumping service, the District can line a total of 8,000 feet of ditch. It is estimated that the completed project will produce savings of 394 AF of water annually. The estimated cost of the total project is $242,000. The District proposes that 79% ($191,000) of the cost be funded by the Water Use Efficiency Program with the remainder of the project's funding being provided by the District through the use of personnel and equipment at an estimated cost of $51,000.

A. Scope of Work: Relevance and Importance

Nature, Scope of the Project

The Oroville-Wyandotte Irrigation District's Forbestown Ditch is an earthen ditch that was constructed in the 1860's. This ditch delivers irrigation water to customers of OWID and YCWD, as well as provides the source water for YCWD's water treatment plant. The design capacity of the ditch is 40 cfs, with flows averaging 24 cfs during the irrigation season (May through October). The main ditch extends approximately 41,500 feet from the Woodleaf Powerhouse penstock to the Costa Creek Diversion (YCWD's outlet diversion for irrigation water) with an average width of six feet and an average depth of three feet. From 1996-2001 the District delivered an annual irrigation season average of 5,430 AF to the Forbestown Ditch for OWID's and YCWD's combined needs. Over that period the annual loss to leakage and/or seepage for the main ditch was an average of 2,040 AF.

The proposed project is the application of a three-inch nylon-fiber reinforced concrete lining to approximately 8,000 feet of main ditch. This would be accomplished in one year during the periods before and after the irrigation season. It is estimated that the project would provide water savings averaging 394 AF annually. The location was chosen based on accessibility and historical knowledge of high leak areas. The District has completed similar projects successfully in the past, and has significant experience in both identifying appropriate locations for sealing applications, as well as in preparing ditches for and applying concrete linings.

Objectives of the Project

The objective of the project is to reduce the amount of water lost to seepage and leakage in the ditch and make the saved water available to the Feather River through the South Fork Power Project. This project will increase water available for hydroelectricity generation, transfers to downstream communities, and flow to improve aquatic ecosystem conditions on the Feather River, addressing Quantifiable Objective #38 in Sub-Region #5.

Need

This project is needed to provide additional water to the South Fork Project for hydroelectricity generation, for transfer to downstream communities, and in the Feather River to improve aquatic ecosystem conditions. The proposed project will reduce losses in the ditch, making more water available for flow into the Feather River from the South Fork Power Project.

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring, and Assessment

Methods, Procedures and Facilities

OWID maintains gauging stations along the Forbestown Ditch. The data from the gauging stations shows an average annual loss during irrigation season of 394 AF from 1996-2001. Lining the earthen ditch, as proposed herein, would significantly reduce leakage and/or seepage from the ditch. A reduction in leakage and/or seepage will result in less water being diverted from the South Fork Project annually, providing more water to the Feather River. OWID has selected the location for lining based on accessibility and leak history. This is a feasible project and can be completed in conjunction with OWID's workload.

OWID will use District personnel to act as Project Manager. The Project Manager's duties will include organizing materials and personnel, and obtaining the access required for completing the project. OWID would complete all ditch preparation work with District personnel and equipment. OWID would then assist the concrete pumping service with the application of the liner. OWID will dedicate the personnel necessary to complete the project. The District has had several successful projects lining canals with the process proposed herein.

Monitoring and Assessment

After project completion, OWID will continue to monitor the losses on the Forbestown Ditch by gauging stations with automated data collectors. The data is collected on a monthly basis and is stored for historical record keeping.

Schedule

The proposed schedule is shown in the timeline below (in year 2001 dollars):

TASK	2003			
	Jan03-Mar03	Apr03-Jun03	July 03-Sept 03	Oct 03-Dec 03
Project Management	$2,816			
Clearing and Grubbing	$1,890		$1,890	
Ditch Preparations		$7,720		$7,720
Ditch Lining		$94,445		$94,446
Quarterly Expenditure	$4,706	$102,165	$1,890	$102,166
Annual Expenditure	$4,706	$106,871	$108,761	$210,927
Length of Canal Lined		4000'		4000'

C. Qualifications of the Applicants, Cooperators, and Establishment of Partnerships

External Cooperators

OWID will solicit the cooperation of property owners along the Forbestown Ditch. OWID has a history of good relationships with property owners and anticipates no problems in gaining access to the ditch for the purposes of the project.

OWID continually works with customers to meet their needs during construction projects. The construction phase of this project is scheduled for the fall and spring seasons when the ditch system is not operating.

Partnerships

The partnership OWID has with the local concrete plant and concrete-pumping service will be enhanced with this project. OWID attempts to use local businesses and contractors whenever projects are constructed. YCWD is expected to support the project because of the benefit they will receive in reduced losses.

Project Manager's Resume

The resume of the Project Manager is shown on the following page.

George M. Barber

Registered Professional Engineer No. C51332

5040 Arden Way Paradise, California 95969

work (530) 533-4578 home (530) 877-1751

PROFESSIONAL EMPLOYMENT

April 1995 to present

WATER DIVISION MANAGER, OROVILLE WYANDOTTE IRRIGATION DIST.

- Responsible for operations of Water Division with 30 employees in Domestic, Irrigation, and Water Treatment.
- Established positive working relationship with General Manager and Board of Directors.
- Worked cooperatively with regulatory agency staff obtaining permits, approvals and agreements.
- Earned respect and confidence of employees.
- Implemented numerous operational and cost saving changes.
- Improved public relations with customers.

July 1992 to April 1995

PROJECT ENGINEER, CALIF. DEPT. OF TRANSPORTATION.

- Acted as the Caltrans Tahoe Coordinator with the Tahoe Regional Planning Agency and the California Regional Water Quality Control Board, Lahontan Region for district projects within the Tahoe Basin.
- Calculated and designed horizontal alignments, profiles, cross sections, rock slope protection systems, drainage systems, rock buttress systems, and engineer's estimates for erosion control and slope stabilization projects within the Tahoe Basin.
- Developed contract plans and special provisions including layouts, typical cross sections, drainage profiles and construction details.
- Acted as district specialist for slope stabilization and erosion control.
- Directed work of three transportation engineers.
- Coordinated with public utilities and public agencies.
- Directed public information meetings.

December 1990 to July 1992

TRANSPORTATION ENGINEER, CALIF. DEPT. OF TRANS.

- Conducted hydrologic studies and determined watershed areas.
- Designed drainage improvements.
- Developed plans and engineer's estimates.
- Assisted design engineers using design software.
- Tested new design software.
- Developed project reports.
- Calculated and designed horizontal alignments, profiles, cross sections, rock slope protection systems, and drainage systems.
- Acted as Assistant Resident Engineer overseeing earthwork operations, paving operations, rock slope protection placement, and guardrail and detour construction.
- Calculated progress pay estimates.

EDUCATION

1983-1990 California State University at Chico. Bachelor of Science in Civil Engineering

ACCOMPLISHMENTS

Professional Engineer in Civil Engineering, California License No. C51332

D. Costs and Benefits

Budget Breakdown and Justification

Description	Unit Costs (year 2001 dollars)	Units	2003 Expenses (year 2001 dollars)	
			OWID	Program
Salaries and Wages	$/hour	Hours		
Canal Preparation	$58.00	200	$10,324	
Shotcrete Application	$80.00	200	$14,240	
Fringe Benefits	46.5% overhead	Hours		
Canal Preparation	$26.97	200	$4,801	
Shotcrete Application	$37.20	200	$6,622	
Supplies	$/CY	CY		
Shotcrete	$95.00	1440		$121,752
Equipment	$/hour	Hours		
Bobcat Excavator	$23.00	200	$4,094	
Compressor	$10.00	200	$1,780	
Services	$/hour	Hours		
Concrete Pumping Service	$250.00	200		$44,500
Planning and Design	$/hour	Hours		
Project Management	$30.00	72	$1,922	
Fringe Benefits	46.5% overhead	Hours		
Project Management	$13.95	72	$894	
Annual Estimated Cost				
OWID			$44,676	
Program				$166,251

Total Estimated Cost		
OWID	$44,676	
OWID Contingency - 12.4%	$6,324	
OWID Subtotal	$51,000	21%
Program	$166,251	
Program Contingency - 13%	$24,749	
Program Subtotal	$191,000	79%
Total Project	$242,000	100%

The previous spreadsheet identifies the budget for materials, installation and planning.

The Project Manager will complete design and engineering for the project. OWID expects no funds will be necessary for the following, but will commit the funds necessary if the need arises:

- Land Purchase/Easement
- Structures
- Equipment Purchases/Rentals
- Environmental Mitigation/Enhancement
- Construction Administration
- District Legal Fees/License Fees
- Travel

The contingency identified is justified because the Project Estimates are based on an average ditch width that varies in the field. Actual ditch widths are not determined at this time and may necessitate additional materials to accomplish the project.

Cost-Sharing

Cost sharing amounts are identified in the budget breakdown and will be funded through the District's annual budget.

Budget Justification

This budget is based on past experience of the District with shotcrete lining projects. The District proposes to provide all labor for the project. The District has experienced good success with shotcrete lining projects. All preparation work is to be done by District personnel, including assisting the concrete-pumping service with the application of the liner.

Benefit Summary and Breakdown

The project will provide a benefit to the Quantifiable Objective 38 in Sub-Region 5. The project will provide additional water for hydroelectricity generation by the South Fork Power Project and transfer to downstream communities, and in the Feather River to improve aquatic ecosystem conditions.

The historical water loss in the ditch was determined from stream gauging stations on the ditch that are monitored continuously, with data collected monthly. The average loss on the main ditch was determined to be 2,040 AF annually during the irrigation season. Data used was from the 1996-2001 irrigation seasons.

OWID and PG&E have a Power Purchase agreement that provides PG& E with all power generated from the South Fork Power Project. PG&E will benefit from the project due to the additional water available for generation through the South Fork Power Project. PG&E's benefit will be the market rate of power less surplus-water (amounts less than the annual contract allotment) payments to OWID and YCWD as quantified by the Power Purchase Agreement and an agreement between OWID and YCWD.

By agreement, PG&E pays OWID $43.90/AF for surplus water and pays YCWD $7.10/AF for surplus water.

The South Fork Power Project's license issued by the Federal Energy Regulatory Commission expires in 2009 and, although OWID is applying for license renewal, the benefits and beneficiaries cannot be quantified beyond 2009 until the second-phase license has been approved.

Water Savings of Lining Project

This project proposes to line 8,000 feet of the main section of the Forbestown Ditch.

Annual Project Water Savings

Total Length of Main Ditch = 41,500 feet

Proposed Project Lining Length = 8,000 feet

% of Lined Ditch = 8,000/41,500 x 100 = 19.3%

Annual Water Loss on Main Ditch = 2,040 AF

Total Project Water Savings

19.3% x 2040 AF = 394 AF annually

Quantifiable Benefit of Water Savings

PG&E Benefit

Powerhouse		MW		(MW-hr)/AF
Woodleaf	Installed Capacity	58.5		1.24
Forbestown	Installed Capacity	38.8		0.70
Kelly Ridge	Installed Capacity	10.9		0.52
				2.46

	(MW-hr)/AF	$/MW-hr	AF	$ value
Generation Value	2.46	65	394	$ 62,975
		$/AF		
Surplus - OWID		43.90	197	$ 8,648
Surplus - YCWD		7.10	197	$ 1,399
Net value				$ 52,928

OWID

Year	Benefit (year 2000 dollars)	6% discount rate
2004	$ 8,648	$ 8,158
2005	$ 8,648	$ 7,697
2006	$ 8,648	$ 7,261
2007	$ 8,648	$ 6,850
2008	$ 8,648	$ 6,462
2009	$ 8,648	$ 6,096
	Net Present Value	$ 42,525

YCWD

Year	Benefit (year 2000 dollars)	6% discount rate
2004	$ 1,399	$ 1,320
2005	$ 1,399	$ 1,245
2006	$ 1,399	$ 1,175
2007	$ 1,399	$ 1,108
2008	$ 1,399	$ 1,045
2009	$ 1,399	$ 986
	Net Present Value	$ 6,879

PG&E

Year	Benefit (year 2000 dollars)	6% discount rate
2004	$ 52,928	$ 49,932
2005	$ 52,928	$ 47,106
2006	$ 52,928	$ 44,439
2007	$ 52,928	$ 41,924
2008	$ 52,928	$ 39,551
2009	$ 52,928	$ 37,312
	Net Present Value	$ 260,264

Transfer Value Benefit

In 2000 OWID entered into an agreement to transfer water to the State of California's Environmental Water Account. The price of water in that agreement was $75/AF. The transfer value used herein is based on the transfer price of water paid by the Environmental Water Account to OWID.

Transfer Value = 394 AF x $75 = $29,550

The annual value of water calculated was used to determine the net present value of the proposed project. The life expectancy of the lining is estimated to be 20 years.

CALFED

Year	Benefit (year 2001 dollars)	6% discount rate
2004	$ 29,550	$ 27,877
2005	$ 29,550	$ 26,299
2006	$ 29,550	$ 24,811
2007	$ 29,550	$ 23,406
2008	$ 29,550	$ 22,081
2009	$ 29,550	$ 20,832
2010	$ 29,550	$ 19,652
2011	$ 29,550	$ 18,540
2012	$ 29,550	$ 17,491
2013	$ 29,550	$ 16,501
2014	$ 29,550	$ 15,567
2015	$ 29,550	$ 14,685
2016	$ 29,550	$ 13,854
2017	$ 29,550	$ 13,070
2018	$ 29,550	$ 12,330
2019	$ 29,550	$ 11,632
2020	$ 29,550	$ 10,974
2021	$ 29,550	$ 10,353
2022	$ 29,550	$ 9,767
2023	$ 29,550	$ 9,214
	Net Present Value	$ 338,936

Assessment of Costs and Benefits

Major Analysis Assumptions

- The water savings calculations are based on the average losses over the main section of the Forbestown Ditch. A ditch of this length will have varying loss factors based on terrain and soil type. Selection of the project location was based on the District's knowledge of areas with adequate accessibility and with above-average leakage and/ or seepage rates.
- The price of $65.00/Mwh for the generation value is based on the recent bids received by the California Department of Water Resources for the purchase of power on behalf of California power consumers.
- The price of $75.00/AF for the transfer value is based upon the value of water specified in the 2000 transfer agreement between OWID and the Environmental Water Account.
- The power value of the water after 2009 is not quantifiable because the status of the second-phase FERC license is not known beyond this year.
- The water savings is assumed to be shared equally between OWID and YCWD because the average flow in the ditch is generally shared equally.

Cost Benefit Summary

Present Value of Quantified Costs and Benefits

Project Quantified Costs	
OWID Cost	$ 51,000
Program Cost	$ 191,000
Project Cost	**$ 242,000**

Project Quantified Benefits	
OWID Benefit	$ 42,525
YCWD Benefit	$ 6,879
PG&E Benefit	$ 260,264
CALFED Transfer Value Benefit	$ 338,936
Project Benefit	**$ 648,604**

Non-Quantified Costs and Benefits

OWID
OWID will realize a non-quantified benefit of reduced maintenance on the sections of ditch lined by the project.

OWID will realize a non-quantified cost by the redirection of workforce to the project.

CALFED Program
The CALFED program will realize a non-quantified benefit from the additional water provided in the Feather River to improve aquatic ecosystem conditions, addressing Quantifiable Objective #38 in Sub-Region #5.

Downstream Communities
Downstream communities will realize a non-quantified benefit from the additional water provided in the Feather River.

E. Outreach, Community Involvement, and Information Transfer

Outreach Efforts

OWID conducts monthly meetings of its Board of Directors that are open to public participation. A copy of this proposal will be provided to the Board of Directors and the public at the Board's meeting on March 26, 2002. The proposed project has no impact on tribal entities in the area.

Training, Employment, and Capacity-Building Potential

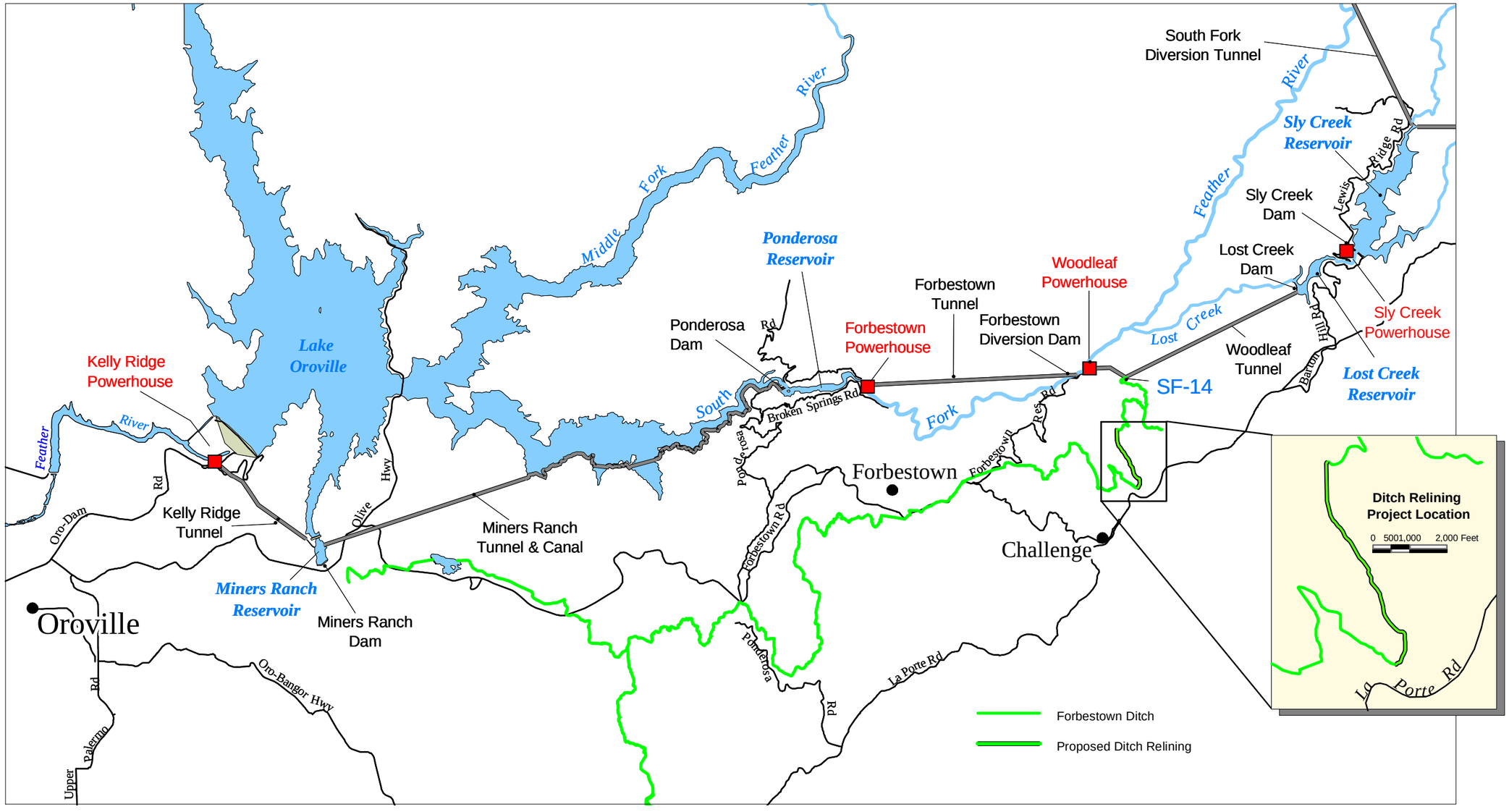
OWID will use six to eight different District personnel for the project. The project will allow them to gain further experience and training on shotcrete and canal lining projects.

Information Transfer

OWID plans to advertise the project's progress and results at monthly Board of Directors meetings. OWID plans to highlight the project in its quarterly newsletter for customers and the public.

Cooperating Agencies

OWID anticipates the planning and construction of the project will not impact other agencies. If the proposal is accepted and scheduled, OWID will notify PG&E of the project.



Oroville-Wyandotte Irrigation District
Forbestown Ditch Lining Project

Map prepared by: Chris Crown 2/02
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SOURCES:
This map was prepared using data from OWID paper drawings, USGS and U.S. Census Bureau digital files and GPS coordinates collected by OWID.

DISCLAIMER:
The map is not to surveyor or engineering accuracy. It is provided for illustration purposes only and is not suitable for site-specific decision making.